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ABSTRACT

Officials representing 60 school districts contributed information to this assessment of the experiences of school districts that have closed elementary schools in the past few years. The data collected were examined and assessed according to five major topics: (1) criteria used for school closure decisions, (2) optimum elementary school size and methods of determining building capacity, (3) amount of cost savings resulting from closure of elementary schools, (4) disposition of buildings that had been closed, and (5) impact of elementary school closures on surrounding neighborhoods. The three criteria cited most often as reasons for closing schools were declining enrollments, age of building, and desegregation efforts. Closure is a simple solution to the problem of excess space, but it is also a source of other problems, problems far more intricate and complex and much more difficult and costly to solve. Once an elementary school is closed, the environmental forces of out-migration, population decline, and neighborhood deterioration are set in motion. Numerous charts and a review of the literature on optimum school size are included. (Author/IRT)

THE ENVIRONMENTAL IMPACT

OF

SCHOOL CLOSURES

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Finally, the research team extends its appreciation to the 59 school officials in the cooperating school districts for sharing their experiences in order that others who are faced with potential closure might benefit from their willingness to share.

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INTRODUCTION

During the period of 1950-1970, educators were faced with the problem of building enough facilities to keep up with the demands of a constantly increasing school population. For the most part, the challenge to provide adequate space and eliminate overcrowding was met, with buildings being constructed at a record rate.

But almost overnight, the population explosion in the United States came to an end. Between 1970 and 1973, population growth plummeted 33 percent. Last year, only 3.1 million babies were born in this country, the lowest number born in any one year since World War II. In 1957, there were 122.9 live births per 1,000 women of child-bearing age (15-44). Last year, only 69.3 live births per 1,000 women of the same age group were recorded. If the new pattern of births continues, the United States will reach zero population growth before the Year 2,000.

The end of the war baby boom, the decline in the fertility rate, and the advent of ZPG have staggering implications for the operation of public school systems. Enrollments in many school districts, particularly large urban districts, have dropped drastically in the last 2-3 years and population projections indicate an even greater drop during the next few years. The predicament now faced by educators is summed up by the title of a recent Educational Facilities Laboratories publication: "Fewer Pupils/Surplus Space."

The impact of the new problems created by the enrollment decline is even greater when one considers that administrators, already faced with the Herculean tasks of operating large urban school systems, had little, if any, time to plan for the enrollment decline.

Decisions regarding the placement of new schools during 1950-1970 were relatively simple: one simply projected population movements already underway into open spaces and built new schools in those areas of population growth and high viability.

Decisions regarding enrollment declines, consequent excess space and possible closure of schools, are considerably more complex. We are becoming more sensitive to the deteriorating condition of our cities, the demands of an advanced technological society and the need to preserve our environment. We are becoming acutely aware that the Earth is the only decent piece of real estate in the immediate vicinity.

We are beginning to recognize the interrelatedness of all variables in our ecosystem. In sum, educational decisions are ecological decisions, and the negative consequences of short-sighted ecological decisions are costly and difficult to reverse. We are learning -- sometimes the hard way -- that when riding backwards on a train, you don't see anything until it has already passed you by.

Given the complexity of the problems of declining enrollments, school districts must possess a comprehensive information base in order to make the best possible decisions. A review of the literature, however, indicates that the current information base is relatively limited, although several study efforts have been made. Noteworthy among these efforts are the "Report of the Small School Task Force" (Montgomery County Public Schools, 1973), "Size of Schools and School Districts" (Educational Research Service, 1971), and "Fewer Pupils/Surplus Space" (Educational Facilities Laboratories, 1974). These studies were conducted in order to gather input data for outlining procedures for the closure of elementary Schools. "Fewer Pupils/Surplus Space"

also provides an insightful and searching analysis of population trends and projections.

The studies conducted to date, however, place relatively little emphasis on the ecological aspects of declining enrollments. Thus, it was decided to extend the information base in these ecological aspects by assessing the experiences of 60 school districts throughout the country that had closed, or were planning to close, elementary schools. The results of this assessment are summarized in the following pages. It is hoped that the information provided in this report will contribute to a better understanding of the complex problem of declining enrollments.

METHODOLOGY AND PROCEDURES

The survey effort involved a telephone interview designed to gain specific information concerning school districts' experience with the closure of elementary schools. The school district officials interviewed were in charge of facilities planning. For the most part, these officials were assistant superintendents or directors of planning and facilities.

All surveys were conducted during June, July and August, 1974. The 60 school districts selected for participation in the study were those initially contacted by the Educational Facilities Laboratory during the course of developing their report, "Fewer Pupils/Surplus Space." A complete listing of the school districts contacted is presented in Appendix A of this report.

The 60 school districts who were contacted for the study are summarized in Table I according to whether or not they had closed elementary schools or planned to do so.

TABLE I

NUMBER OF DISTRICTS CONTACTED, BY RESPONSE*

Response	No.	Percent
1. Had closed schools or will do so in 1974-75	49	81.7
2. Planning to close schools at some future time	4	6.7
3. Had not closed schools, was not planning to do so	6	10.0
4. Did not wish to participate	1	1.6
TOTAL	60	100.0

*Question asked was, "Has your district closed any elementary schools in the past few years?

Forty-nine school districts had closed elementary schools, or were planning to close elementary schools in the fall of 1974-75. Of the remaining 11 school districts, four (Rochester, New York; Newton, Massachusetts; Chattanooga, Tennessee; Berkeley, California) were in the process of planning to close schools at some time in the future. Six school districts, namely, Plymouth, Michigan; Scottsdale, Arizona; Northville, Michigan; and Santa Ana, California, had not closed schools and were not planning to do so. The remaining school district, Jackson, Mississippi, did not wish to participate in the study.

The 49 school districts that had closed or were planning to close elementary schools are presented in Table II. These districts are presented by the number of schools closed or planned for closure, and the dates when those schools were, or will be, closed.

Of those school districts that had closed schools, Atlanta, Georgia had closed the most with 18 elementary schools closed between 1969 and 1974. Other school districts with considerable experience relating to school closures include Wichita, Kansas; Salt Lake City, Utah; and Des Moines,Iowa,each closing 15, 14 and 12 schools respectively. The district considering closing the most schools was Minneapolis, Minnesota. Minneapolis is planning to close 20 elementary schools in the fall of 1974-75; however, it is anticipated that new schools will be built to house the students displaced because of closure.

TABLE II

NUMBER OF SCHOOLS CLOSED, AND YEAR(S)
OF CLOSURE, BY DISTRICT*

District	Number of Schools Closed	Dates Closed
1. Madison, WI	6	1970-74
2. Phoenix, AZ	3	1972-74
3. Salt Lake City, UT	14	1964
4. Plainview, NY	1	1971
5. Canton, OH	2	1973
6. Cambrian, CA	1	1974
7. Des Moines, IA	12	1971
8. Atlanta, GA	18	1969-74
9. Great Falls, MT	2	1968
10. Chula Vista, CA	2	to be closed 1974-75
11. Downey, CA	4	1972-74
12. Denver, CO	4	1970-74
13. Los Altos, CA	1	1971
14. Dallas, TX	3	1972
15. Charlotte, NC	8	1969
16. Philadelphia, PA	4	1970
17. Freeport, NY	1	1968
18. Torrance, CA	4	1968-74
19. Sampson County, NC	1	1968
20. Wichita, KS	15	1966-67
21. Kansas City, MO	6	to be closed 1974-75
22. Minneapolis, MN	20	to be closed 1974-75
23. Spokane, WA	10	1972
24. Buffalo, NY	3	1968-73
25. Arlington, VA	7	1969-74
26. Columbia, SC	5	1971-74
27. Palo Alto, CA	2	1971
28. Lansing, MI	2	1971

TABLE II (Continued)

District	Number of Schools Closed	Dates Closed
29. Pittsburgh, PA	2	1972
30. Los Angeles, CA	3	1972
31. Seattle, WA	4	1967-71
32. New Rochelle, NY	1	1968
33. Hinsdale, IL	1	1972
34. Glen Cove, NY	1	1967
35. Santa Ana, CA	1	1970
36. Kansas City, KS	5	1971
37. Sacramento, CA	17	to be closed 1974-75
38. Santa Clara, CA	5	to be closed 1974-75
39. Eau Claire, WI	2	1971
40. Hayward, CA	4	1972
41. San Antonio, TX	2	1973-74
42. Nashville, TN	5	1970
43. Houston, TX	2	1972
44. Livonia, MI	4	1968-73
45. Pontiac, MI	5	1972-73
46. Abbeville, GA	3	1967-72
47. Ann Arbor, MI	3	1964-71
48. Birmingham, MI	1	1971
49. Peoria, IL	3	1969-71

*Question asked was, "How many elementary schools were closed and when did your district close them?

PRESENTATION AND ANALYSIS OF DATA

The data obtained through the survey are presented in five parts: (1) criteria for school closure decisions; (2) optimum school size and methods of determining school building capacity; (3) estimated cost savings derived from school closures; (4) disposition of closed facilities; and (5) impact of school closures. Each of the five parts is followed by an analysis of the data presented.

Closure criteria

Decisions regarding school closures usually start with--and ultimately are based on-- the gathering and ordering of information according to a set of predetermined criteria. The number of criteria used by the 49 school districts that have closed elementary schools (or are planning to do so during 1974-75) are presented in Table III. The specific criteria used by the districts are presented in Table IV on the following page.

TABLE III

NUMBER OF CLOSURE CRITERIA USED, BY DISTRICT

Number of Criteria Used	Number of Districts	Percent	Cumulative Percent
1	18	36.7	36.7
2	13	26.6	63.3
3	7	14.2	77.5
4	3	6.1	83.6
5	3	6.1	89.7
6	2	4.1	93.8
7	2	4.1	97.9
13	1	2.1	100.0
	49	100.0	

TABLE IV

CRITERIA USED FOR SCHOOL CLOSURE DECISIONS*

NAME OF DISTRICT	Impact on Neighborhoods	Desegregation	Crime Rate	Property Values	Outmigration	Transportation Costs	Declining Enrollment	Age of Building	Proximity to Other Schools	Impact on Educational Prcgram	Safety of Children	Congruence with City Planning	Safety of Building	TOTAL NUMBER OF CRITERIA USED
1. Madison, WI	x			x	x	x	x							5
2. Phoenix, AZ	x		x	x	x	x	x	x						7
3. Salt Lake City, UT							x	x						2
4. Plainview, NY							x							1
5. Canton, OH	x				x		x							3
6. Cambrian, CA						x	x	x	x	x	x			6
7. Des Moines, IA							x	x						2
8. Atlanta, GA		x					x							2
9. Great Falls, MT							x							1
10. Chula Vista, CA							x							1
11. Downey, CA		x					x							2
12. Denver, CO		x					x							2
13. Los Altos, CA	x					x	x	x	x					5
14. Dallas, TX		x												1
15. Charlotte, NC		x												1
16. Philadelphia, PA					x	x		x						3
17. Freeport, NY		x												1
18. Torrance, CA									x					1
19. Sampson County, NC		x												1
20. Wichita, KS		x					x							2
21. Kansas City, MO	x	x	x	x	x	x	x	x	x	x	x	x	x	13
22. Minneapolis, MN	x	x			x	x	x	x	x					7
23. Spokane, WA	x					x		x						3
24. Buffalo, NY								x						1

TABLE IV (Continued)

NAME OF DISTRICT	Impact on Neighborhoods	Desegregation	Crime Rate	Property Values	Outmigration	Transportation Costs	Declining Enrollment	Age of Building	Proximity to Other Schools	Impact on Educational Program	Safety of Children	Congruence with City Planning	Safety of Building	TOTAL NUMBER OF CRITERIA USED
25. Arlington, VA		x		x			x	x						4
26. Columbia, SC	x	x			x	x	x							5
27. Palo Alto, CA							x							1
28. Lansing, MI		x					x	x						3
29. Pittsburgh, PA		x			x	x	x	x				x		6
30. Los Angeles, CA						x	x	x	x					4
31. Seattle, WA**		x					x	x						3
32. New Rochelle, NY							x	x						2
33. Hinsdale, IL							x	x						2
34. Glen Cove, NY							x							1
35. Santa Ana, CA								x						1
36. Kansas City, KS							x							1
37. Sacramento, CA		x												1
38. Santa Clara, CA							x							1
39. Eau Claire, WI								x						1
40. Hayward, CA							x	x						2
41. San Antonio, TX							x			x				2
42. Nashville, TN		x												1
43. Houston, TX													x	1
44. Livonia, MI							x	x	x					3
45. Pontiac, MI		x					x	x	x					4
46. Abbeville, GA		x					x							2
47. Ann Arbor, MI		x					x							2
48. Birmingham, MI							x		x					2
49. Peoria, IL		x					x	x						3

*The question asked was "What criteria did you use in determining which schools to close?

**It should be noted that discussion with school officials in Seattle indicate that future decisions to close elementary schools will be based on all of the 13 criteria listed in this table.

Analysis of data presented in Tables III and IV indicate that a majority (60.3%) used only one or two criteria for school closure decision making. More than three-fourths (77.5%) of the districts used only three or fewer criteria. Ten districts used from four to seven criteria, and one district (Kansas City, Missouri) used thirteen criteria.

The frequency of use of specific criteria by districts is presented in Table V.

TABLE V

RANK ORDER OF SCHOOL CLOSURE CRITERIA, BY FREQUENCY OF USE

Closure Criteria	Districts Using Criteria	
	Number	Percent
Declining Enrollment	36	73.4
Age of Building	23	46.9
Desegregation	21	42.8
Transportation Costs	11	22.4
Proximity to Other Buildings	9	18.4
Outmigration	8	16.3
Impact on Neighborhood	8	16.3
Property Values	4	8.2
Impact on Educational Programs	3	6.1
Crime Rate	2	4.1
Safety of Children	2	4.1
Safety of Building	2	4.1
Congruence With City Plans	2	4.1

The data presented in Table V show that the single most popular criterion was enrollment decline, with 73.4 percent of the districts using that factor for seeking information and making decisions regarding school closures. The age of school facilities was the second most often used (46.9% of the districts), followed by district-initiated or court-ordered desegregation efforts (40.8% of the districts).

One further notes the relative lack of use of most of the criteria. In particular, it seems that the criterion, "impact on educational programs," (often cited as the fundamental factor in any educational issue) was used by only three of the school districts in deciding which schools to close.

The data presented in Tables III, IV and V clearly indicate that school districts, when seeking information and making decisions regarding complex school closure issues, utilize a limited number of criteria to order the decision process and that the most often used criteria were enrollment decline and age of building.

Optimum School Size and Building Capacity

On the basis of educational or economic policy, a district might close a school for no other reason that that a school is "too small" or too large." Further, districts must obtain building capacity data, as such data is central to any discussion of availability of space in schools.

Therefore, determination of optimum enrollment of elementary schools and determination of school building capacity may be considered an integral part of the decision process related to school closures.

Data obtained from the survey regarding optimum elementary school size and school building capacity are presented in Table VI.

TABLE VI

OPTIMUM SIZE* AND CAPACITY**

District	Optimum School Size	Method of Calculation	District Size
1. Madison, WI	depends on grades	2 classes/grade	34,755
2. Phoenix, AR	500-700	--	27,297
3. Salt Lake City, UT	600		33,528
4. Plainview, NY	--	PT[a](28:1)xTS[b]	10,568
5. Canton, OH	500-600	--	20,562
6. Cambrian, CA	none	--	5,297
7. Des Moines, IO	300-350	--	44,763
8. Atlanta, GA	1 teacher per grade	--	104,246
9. Great Falls, MT	400-500	PT(25:1)xTS	[c]
10. Chula Vista, CA	650	--	16,981
11. Downey, CA	400-600	many factors	17,290
12. Denver, CO	450-850	--	95,536
13. Los Altos, CA	450-500	PTxTS	5,219
14. Dallas, TX	600-800	PT(27:1)xTS	161,869
15. Charlotte, NC	none	pupils/sq.ft.	80,047
16. Philadelphia, PA	--	PTxTS	291,494
17. Freeport, NY	500-1000	PTxTS	7,966
18. Torrance, CA	600-700	PTxTS	30,072
19. Sampson County, NC	200+	PTxTS	7,966
20. Wichita, KS	650	PTxTS	62,394
21. Kansas City, MO	--	100-120sq.ft./pupil	68,817
22. Minneapolis, MI	600	PTxTS	65,953
23. Spokane, WA	500-550	PTxTS	35,171
24. Buffalo, NY	none	PTxTS	70,321
25. Arlington, VA	525	PT925:1)xTS	24,260
26. Columbia, SC	600	PTxTS	38,726
27. Palo Alto, CA	--	PTxTS	13,993
28. Lansin, MI	350-450	PTxTS	30,825
29. Pittsburgh, PA	600-1000	PT(26:1)xTS	71,804
30. Los Angeles, CA	--	--	738,281

TABLE VI (Continued)

District	Optimum School Size	Method of Calculation	District Size
31. Seattle, WA	420	90sq.ft./pupil	72,037
32. New Rochelle, NY	none	--	11,693
33. Hensdale, IL	none	--	3,850
34. Glen Cove, NY	none	--	5,287
35. Santa Ana, CA	none	--	28,549
36. Kansas City, KS	none	--	32,237
37. Sacramento, CA	300-400	PTxTS	60,138
38. Santa Clara, CA	none	--	23,940
39. Eau Claire, WI	500-600	PT(25:1)xTS	10,408
40. Hayward, CA	600-700	PTxTS	26,626
41. San Antonio, TX	700	PTxTS	74,190
42. Nashville, TN	600	PT(25:1)xTS	93,590
43. Houston, TX	none	--	221,960
44. Livonia, MI	300	PT(30:1)xTS	35,141
45. Pontiac, MI	500	PT(29:1)xTS	22,270
46. Abbeville, GA	200+	PTxTS	[c]
47. Ann Arbor, MI	400	PTxTS	18,538
48. Birmingham, MI	450	PT(27:1)xTS	15,551
49. Peoria, IL	500-600	PT(25:1)xTS	24,311

*Question asked was, "What do you consider an optimum size for an elementary school?"

**Question asked was, "How do you determine the capacity of an elementary school building?"

[a]PT = pupil teacher ratio

[b]TS = teaching stations

[c]Data not available in Education Directory

The data in Table VI indicate that 28 of the 33 district officials who indicated a preference for the optimum-size elementary school preferred a school somewhere above 300 pupils, but with less that 700 pupils. These findings represent 85 percent of the school officials surveyed. Nine percent of the school officials preferred a school greater than 700 pupils and six percent preferred schools with less than 300 pupils.

There was no evidence to suggest that school size was related to the total number of pupils served by the individual districts. However, these data tend to suggest that school officials in the South were more accepting of the viability of smaller schools than were school officials in other parts of the country.

In addition to seeking information from the district survey, a review of the literature on optimum school size and output measures (achievement of students) was conducted.

Data from the review of literature concerning school size and output measures does not correspond with common practice as revealed in this study. The review of literature (see Appendix B) suggests that when considering school output measures, a range of 200-500 pupils was considered optimum. This contrasts to the 300-700 pupil range found most common in practice. Such discrepancies tend to indicate that school officials make optimum size decisions on an efficiency-of-operation basis rather than using quality of education as an output measure.

Estimated Cost Savings

Cost savings is often cited as a reason for closing elementary schools. Accordingly, part of the survey effort involved collection of data relating toboth in-building cost savings and actual cost savings after closure. The data obtained are presented in Table VII on the following page.

TABLE VII

SUMMARY OF ESTIMATED COST SAVINGS BY DISTRICT*

District	COST SAVINGS CALCULATED			
	In-building Savings	Amount	Actual Savings	Amount
1. Madison, WI	yes	uncertain	no	--
2. Phoenix, AZ	yes	$80,000	yes	$50-$60,000
3. Salt Lake City, UT	yes	$/sq.ft./student	no	--
4. Plainview, NY	yes	salaries/op.main	no	--
5. Canton, OH	yes	$30,000	no	--
6. Cambrian, CA	yes	$38,000	no	--
7. Des Moines, IA	yes	$50,000(est.)	no	--
8. Atlanta, GA	yes	uncertain	no	--
9. Great Falls, MT	uncertain	--	no	--
10. Chula Vista, CA	no	--	no	--
11. Downey, CA	yes	$40,000	no	--
12. Denver, CO	yes	personnel/util.	no	--
13. Los Altos, CA	yes	$70,000(est.)	no	--
14. Dallas, TX	no	--	no	--
15. Charlotte, NC	no	--	no	--
16. Philadelphia, PA	no	--	no	--
17. Freeport, NY	no	--	no	--
18. Torrance, CA	yes	$140,000	no	--
19. Sampson County, NC	no	--	no	--
20. Wichita, CS	yes	$40-$50,000	yes	no savings
21. Kansas City, MO	no	--	no	--
22. Minneapolis, MN	yes	increased costs	yes	increased costs
23. Spokane, WA	yes	$88,000	no	--
24. Buffalo, NY	yes	$32-$81,000	no	--
25. Arlington, VA	yes	$35,000	yes	$2,000
26. Columbia, SC	yes	$20,000(est.)	no	--
27. Palo Alto, CA	yes	principal/secy salaries	no	--
28. Lansing, MI	yes	not prepared to answer	no	--

TABLE VII (Continued)

District	COST SAVINGS CALCULATED			
	In-building Savings	Amount	Actual Savings	Amount
29. Pittsburgh, PA	yes	uncertain	yes	$10-$15,000
30. Los Angeles, CA	yes	principal/secy	yes	no savings
31. Seattle, WA	no	--	no	--
32. New Rochelle, NY	no	--	no	--
33. Hinsdale, IL	no	--	no	--
34. Glen Cove, NY	yes	none	yes	no savings
35. Santa Ana, CA	no	--	no	--
36. Kansas City, KS	yes	operating costs	yes	no savings built new building
37. Sacramento, CA	no	--	no	--
38. Santa Clara, CA	no	--	no	--
39. Eau Claire, WI	yes	principal/secy/ maintenance	yes	$10-$15,000
40. Hayward, CA	yes	$50,000	no	--
41. San Antonio, TX	yes	principal/secy/ maintenance	yes	no savings
42. Nashville, TN	yes	maintenance	yes	no savings
43. Houston, TX	yes	uncertain	no	--
44. Livonia, MI	yes	$50-$75,000	no	--
45. Pontiac, MI	yes	$100,000(est.)	no	--
46. Abbeville, GA	yes	maintenance costs	yes	no savings
47. Ann Arbor, MI	no	--	no	--
48. Birmingham, MI	yes	$100,000(est.)	no	--
49. Peoria, IL	no	--	no	--

*Question asked was, "Have you calculated the actual savings gained by closing schools?"

Examination of Table VII reveals a wide array of projected in-building cost savings by districts before schools were closed, from a low of $30,000 in Canton, Ohio to a high of $140,000 per elementary school in Torrance, California. Sixteen of the 49 school districts which had closed schools had not calculated the in-building cost savings. For the most part, these districts had closed schools for purposes of achieving racial desegregation.

Variances in the amounts of in-building cost savings were a function of the different sizes of elementary schools which were closed, location, distribution of pupils to other schools, and whether or not the building was converted to other educationl uses.

While 34 school districts had projected in-building cost savings before the schools were closed, only 12 districts had calculated actual cost savings once the schools had been closed. These actual cost savings ranged from approximately $60,000 to no savings in actual costs. In addition, both Kansas City, Kansas, and Minneapolis, Minnesota school districts concluded that the closures had actually cost money. These costs were incurred as a result of extensive new construction programs to house the students from the buildings which were being closed.

As can be observed in Table VII, four school districts concluded that they had actually saved money. These ranged from a high of $50,000 to $60,000 (depending on the school closed) in Phoenix, Arizona, to a low of $2,000 in Arlington, Virginia. The two remaining school districts, Pittsburgh, Pennsylvania and Eau Claire, Wisconsin, both concluded that they had saved between $10,000 and $15,000 depending on the school closed.

In effect, then, 33.3% of the school districts who had calculated actual cost savings after the closure of elementary schools concluded that they had saved money.

On the other hand, six school districts or 50% of those districts who had calculated actual costs concluded that no money had been saved by the closure of schools. The lack of cost savings were attributed to increased transportation costs, reduced school support, increased crime rate, decreased property values, and disruption of educational programs.

As noted above, the remaining 16.7% of the schools indicated that the closures had cost the district more money. Thus, 66.7% of the school districts which had evaluated the effects of closures came to the conclusion that they had saved no money or that the closures were costing the district more money. Correspondingly, 33.3% concluded that they had saved money from the closures but it was less than had been projected before the schools were closed.

Disposition of Closed Facilities

Clearly, closure of schools also entails decisions regarding the disposition of those schools. Thus, the survey included questions concerning what the school districts had done with the buildings once the elementary schools were closed. Data related to disposition of the buildings are presented in Table VIII.

TABLE VIII

DISPOSITION OF CLOSED FACILITIES, BY DISTRICT

DISTRICT	Number Closed	Used for District Offices	Used for District Storage	Used for Other District Education Programs	Leased to Governmental Organizations	Leased to Private Firm	Replaced	Torn Down	Boarded Up	Offered for Sale	Sold
1. Madison, WI	6				2	2				2	2
2. Phoenix, AZ	3				1				1	1	
3. Salt Lake City, UT	14									14	14
4. Plainview, NY	1				1						
5. Canton, OH	2			1	1						
6. Cambrian, CA	1				1						
7. Des Moines, IA	12				1					11	3
8. Atlanta, GA	18	8			7					3	
9. Great Falls, MT	2			2							
10. Chula Vista, CA	TBC*										
11. Downey, CA	4			2	1					1	1
12. Denver, CO	4				2			1		1	1
13. Los Altos, CA	1									1	1
14. Dallas, TX	3	1	1						1		
15. Charlotte, NC	8		1	1	2				3	1	1
16. Philadelphia, PA	4				2	2					
17. Freeport, NY	1				1						
18. Torrance, CA	4			1	2					1	1
19. Sampson County, NC	1			1							
20. Wichita, KS	15				12					3	3
21. Kansas City, MO	TBC										
22. Minneapolis, MN	TBC										
23. Spokane, WA	10		3					7			
24. Buffalo, NY	3			3							

TABLE VIII (Continued)

DISTRICT	Number Closed	Used for District Offices	Used for District Storage	Used for Other District Education Programs	Leased to Governmental Organizations	Leased to Private Firm	Replaced	Torn Down	Boarded Up	Offered for Sale	Sold
25. Arlington, VA	7				7						
26. Columbia, SC	5				3					2	0
27. Palo Alto, CA	2	1			1						
28. Lansing, MI	2	2									
29. Pittsburgh, PA	2								1	1	1
30. Los Angeles, CA	3									3	3
31. Seattle, WA	4			4							
32. New Rochelle, NY	1			1							
33. Hinsdale, IL	1							1			
34. Glen Cove, NY	1			1							
35. Santa Ana, CA	1							1			
36. Kansas City, KS	5				5						
37. Sacramento, CA	TBC										
38. Santa Clara, CA	TBC										
39. Eau Claire, WI	2							2			
40. Hayward, CA	4			4							
41. San Antonio, TX	2									2	0
42. Nashville, TN	5				5						
43. Houston, TX	2							2			
44. Livonia, MI	4			2	2						
45. Pontiac, MI	5			3					2		
46. Abbeville, GA	3								3		
47. Ann Arbor, MI	3	2		1							
48. Birmingham, MI	1								1		
49. Peoria, IL	3							3			
TOTAL	185	14 7.6%	5 2.7%	27 14.1%	59 31.2%	4 2.1%	— --	17 9.4%	12 6.5%	47 25.8%	35

*To be closed

Analysis of data presented in Table VIII indicates that the most often-used means of disposition of closed schools is to lease those schools to other governmental agencies. Approximately one-third (31.2%) of the closed schools were disposed of in this manner.

The second most frequent option chosen for disposition was to offer the closed facilities for sale. Some 47 schools (25.8%) were put on the market, and 35 of those schools were subsequently sold. As can be seen in Table VIII, the district most often choosing this option appears to be Salt Lake City, with 14 facilities offered for sale and 14 subsequently sold.

The third most frequent option is to retain the school as district property, but to use the facility for other purposes, including office space, storage, or other district educational programs. Some 46 schools (24.4%) were disposed of in this manner.

Impact of School Closures

Data relating to the impact on neighborhoods where schools had been closed were sought as part of the survey effort. It was determined that of those districts surveyed, only four districts had conducted formal ex post facto evaluations of the impact of closing elementary schools. Those districts are: Arlington, Virginia; Los Angeles, California; Wichita, Kansas; and Charlotte, North Carolina.

At the same time, however, school officials in a number of districts indicated that they had examined existing data on closed schools and had made at least cursory observations of the areas where schools had been closed.

Summary statements by school officials concerning the impact of school closures on surrounding neighborhoods are presented in Table IX.

TABLE IX

SUMMARY OF DISTRICT OFFICIALS
COMMENTS ON IMPACT OF CLOSURES

DISTRICT	RESULTS
1. Madison, WI	School next to University of Wisconsin was closed. Population at closure: 640; current student population in area: 40 students. Area in general has deteriorated; there has been a reduction of single family dwellings.
2. Phoenix, AZ	Schools in transitional areas were closed--the closing of the schools and transfer of the students has accelerated the process.
3. Salt Lake City, UT	Closing of schools has accelerated the outmigration of young families. Superintendent was fired during the closure process.
8. Atlanta, GA	"I have noticed no dramatic changes which were not already in process, they are just continuing to happen."
9. Great Falls, MT	Had no impact.
*15. Charlotte, NC	Crime rate increased in areas where schools were closed, people moved out, neighborhoods degenerated. Beginning to build new schools in those areas.
17. Freeport, NY	Reduction in public support, there are fewer children now in that neighborhood, much deterioration in that area.
19. Sampson County, NC	Area has increasingly lost population.
*20. Wichita, KS	Enrollment continued to decline in the areas where schools were closed. Three downtown schools were consolidated into one: enrollment before consolidation 450; in three years it has declined to 225. Other than this area, the school official could see little impact.
22. Minneapolis, MN	Extraction of schools in core area would be too devastating on vitality of the city and integration. Therefore, the school district is building new schools in the core area.
*25. Arlington, VA	Young families have done more selective house buying since the closures. Such activities have caused a 10% to 20% drop in property values in those areas. Because of this, we are very reluctant to close out schools.

TABLE IX (Continued)

DISTRICT	RESULTS
26. Columbia, SC	Extraction of the school moved the land toward commercial usage and away from residential.
27. Palo Alto, CA	Loss in school support--people are bitter.
28. Lansing, MI	"No need to do a formal evaluation." The neighborhood disappeared due to industrial expansion after the school was closed.
29. Pittsburgh, PA	See no changes, becuase the neighborhood was already no longer viable.
*30. Los Angeles, CA	Closure had a definite negative effect upon these areas. We now have a policy that closure is a last resort after everything else has been tried.
39. Eau Claire, WI	Closure had a positive impact as the school was isolated from the community it served. We are working hard to get the second ring around the downtown area to have very good schools.
46. Abbeville, GA	The smaller communities have been destroyed. These people also no longer support the schools.
47. Birmingham, MI	No changes observed.

*Indicates districts conducting formal evaluations.

As can be seen in Table IX, only 20 school officials of the 49 officials in districts which had closed elementary schools felt they were in a position to make evaluative statements concerning the impact of closure decisions on surrounding neighborhoods. For the most part, these statements tended to be analyses of general trends in a positive or negative direction. In the main, school officials observed negative trends in the areas where schools had been closed.

Several school districts, such as Denver, Sacramento, Arlington, Detroit, Minneapolis, and all of the schools surveyed in the South, indicated that great care had to be taken to comply with desegregation guidelines. Assurances to avoid turning their schools toward greater segregation were seemingly of great importance regarding closure decisions in these districts.

It would appear that one of the more innovative plans for resolving the "closure" problem has been developed by the Minneapolis School District. Close examination of schools by Minneapolis school officials suggested that they could not afford to close schools in some areas and maintain at the same time the vitality of those areas. Hence, a cluster plan was developed and will be implemented in the fall of 1974. A cluster of smaller schools will be closed and consolidated into a centrally located school. The old schools will be demolished and the sites where the old schools were located will be resold for residential property. The school officials hope that this plan will help revitalize the core area of the city.

Specific studies conducted in Wichita, Kansas, revealed a sharply declining enrollment in transitional schools when they were closed. Examination of closure decisions in both Arlington, Virginia; and Los Angeles, California reveal depressive effects upon property values. The evaluation of the effects of closure in Charlotte, North Carolina, reveal increased crime rates and

depressed property values. Further, school officials in Charlotte and Philadelphia have concluded that, in some cases, they closed the wrong schools and are in the process of building new schools in those areas.

SUMMARY AND CONCLUSIONS

The purpose of this study was to assess the experiences of school districts that had closed elementary schools in the past few years. Data were obtained from school officials, representing 60 school districts throughout the United States, by means of telephone interviews conducted during June, July, and August, 1974.

Five major topics were explored: (1) criteria used for school closure decisions, (2) optimum elementary school size and methods of determining building capacity, (3) amount of cost savings resulting from closure of elementary schools, (4) disposition of buildings that had been closed, and (5) impact of elementary school closures on surrounding neighborhoods.

Major conclusions

Analysis of the data gathered in this survey suggests the following major conclusions:

1. In deciding which schools to close, the majority of districts used three or fewer criteria. These criteria were: (a) declining enrollment, (b) age of building, and (c) desegregation efforts.

2. Relatively few districts used such criteria for closure as impact on neighborhoods, property values, outmigration of young families or crime rates.

3. An optimum size of 300-700 pupils per elementary school was chosen by a majority of school officials.

4. All but two of the districts surveyed determine building capacity by multiplying pupil/teacher ratio by the number of available teaching stations (classrooms in the building).

5. Estimated in-building cost savings obtained by closing elementary schools ranged from $30,000 to $140,000 per school per year. It should be stressed, however, that only 12 districts had calculated actual cost savings obtained after the schools were closed.

6. Those districts that had calculated actual cost savings concluded that fewer dollars had actually been saved than had been expected, and 67 percent of those districts concluded that they had saved no money, or that the actual costs exceeded the in-building cost savings.

7. For the most part, closed schools were disposed of by (a) leasing to other governmental agencies, (b) selling to private organizations, or (c) retaining those schools, and using them for other district purposes.

8. Twenty districts had conducted either formal or informal evaluations regarding the impact of closure decisions. For the most part, these districts concluded that:

   a. neighborhoods quickly diminished in viability after the elementary schools were closed; some neighborhoods, depending on the area, were completely destroyed.

   b. support for public education diminished in the districts as a result of the closure decisions.

   c. extreme care must be taken in order to avoid turning a school district toward further racial isolation of its pupils.

9. Those districts conducting formal evaluations of the impact of the school closure decisions further concluded that:

   a. in some cases, the wrong schools had been closed, and new schools would have to be built in those areas.

   b. property values declined in areas where schools were closed.

   c. crime rates increased in areas where schools were closed.

   d. young families did more selective buying of houses in areas where schools were closed, and there was a sharp decline in students residing in those areas.

Based on the findings of this study, it is apparent that school districts faced with declining enrollments have chosen one solution: closure of elementary schools. The closure of elementary schools, however, is an exceedingly complex issue, having extensive and pervasive ramifications in virtually all aspects of urban life. Once an elementary school is closed, the environ-

mental forces of out-migration, population decline and neighborhood deterioration are set in motion. It is difficult -- if not impossible -- to reverse these forces.

Closure is a simple solution to the problem of excess space. But at the same time, closure is most assuredly a source of other problems, problems far more intricate and complex and much more difficult and costly to solve.

Those districts faced with the problem of declining enrollment may do well to heed the experiences of the districts cited in this study. By doing so, the temptations of adopting short-range measures might be rejected, and more creative and less costly solutions to the problems of declining enrollment might be explored.

APPENDIX A

LISTING OF SCHOOL DISTRICT SAMPLE

SCHOOL DISTRICT SAMPLE

Madison, Wisconsin
Phoenix, Arizona
Salt Lake City, Utah
Plainview, New York
Canton, Ohio
Cambrian, California
Des Moines, Iowa
Atlanta, Georgia
Great Falls, Montana
Chula Vista, California
Downey, California
Denver, Colorado
Los Altos, California
Dallas, Texas
Charlotte, North Carolina
Philadelphia, Pennsylvania
Freeport, New York
Torrance, California
Sampson County, North Carolina
Witchita, Kansas
Kansas City, Missouri
Minneapolis, Minnesota
Spokane, Washington

Buffalo, New York
Arlington, Virginia
Columbia, South Carolina
Palo Alto, California
Lansing, Michigan
Pittsburgh, Pennsylvania
Los Angeles, California
Seattle, Washington
New Rochelle, New York
Hinsdale, Illinois
Glen Cove, New York
Santa Ana, California
Kansas City, Kansas
Sacramento, California
Santa Clara, California
Eau Claire, Wisconsin
Hayward, California
San Antonio, Texas
Nashville, Tennessee
Houston, Texas
Livonia, Michigan
Pontiac, Michigan
Abbeville, Georgia

SCHOOL DISTRICT SAMPLE

(Continued)

Ann Arbor, Michigan

Birmingham, Michigan

Peoria, Illinois

Rochester, New York

Newton, Massachusetts

Chattanooga, Tennessee

Berkeley, California

Plymouth, Michigan

Scottsdale, Arizona

Northville, Michigan

Jackson, Mississippi

Tallahassee, Florida

San Jose, California

San Diego, California

APPENDIX B

LITERATURE REVIEW OF OPTIMUM SCHOOL SIZE

In conducting a review of the literature relating to elementary school size to educational quality, a number of problems arise. These problems are related to the types of studies and measurement indices employed to explain the relationship between size and educational quality.

To begin with, there have been very few studies directly relating elementary school size to some output measure of school quality. The usual research method employed is that of survey techniques. These include questionnaires and opinionnaires. A typical study of this type will survey a number of superintendents, asking them to indicate what they feel the optimum school size should be. From this response, the conclusions to be reported are drawn. It would seem that data of this type is not empirical enough to support policy decision making.

Another problem has to do with the lack of agreement among researchers as to what shall constitute indicators of educational quality. Lacking this kind of agreement, the most frequently employed indicator of output quality is achievement test scores. The use of test scores as a sole criterion against which to measure educational quality is also suspect, when used as the basis for policy decisions.

The final problem related to the resolution of the elementary school size question is that there are just not many studies which address this question. The majority of the work has been done in relation to secondary school size. There does not seem to have been a demand prior to the present for quality research germane to this issue.

With the preceeding in mind, what follows is a selected review of the literature relating to elementary school size, along with some conclusions.

In a report prepared for the Wisconsin Department of Public Instruction, Fonstad (1973) summarized a number of studies which might be of use to a school district planning to reorganize. Included in the report is a summary of twenty studies, conducted between 1932 and 1970 relating to the question of the optimum size for an elementary school. The majority of the studies were questionnaires and/or opinionnaires. None of the studies (except for one done in 1954) related school size to measurable indicators of educational quality.

School size, however, is related to such factors as "conduciveness to professional stimulation and flexibility," "building and space economies," and "business management of schools." In the one study where a relationship was drawn between school size and educational quality, the measure was limited to one factor only: test scores.

Fonstad indicates that of the twenty sources reviewed, one article indicated small schools (under 300 studies) can be more cost effective; seventeen sources indicated that a school with 300+ students is more effective than a smaller school and two studies indicated that school size is not important in relation to any meaningful factors. It is interesting to note that the word "effective" as it is used in the articles under discussion, relates to factors other than the quality of education offered the students.

Templeton (1972) reviewed a number of studies dealing with the broad issue of individual school and school district size. The majority of the articles he reviewed were related to secondary school size. The few articles which were indirectly related to elementary school size did not discuss the issue in terms of indicators of quality education.

In 1973, the Montgomery County (Maryland) Public School District formed a

Small Schools Task Force to study the phenomenon of declining enrollments and school size. The Task Force examined the available literature, conducted a community survey and studied the question of the optimum size of an elementary school for the district. In their final report, the members of the Task Force concluded that there was no evidence to indicate that school size is a "determining factor in the quality of a child's elementary school education" (p. 5). In addition, the Task Force recommended that a small elementary school be classified as having 300 or fewer pupils and that this figure be utilized as the lower bound of school enrollments permissible in the district. The important point to note, in this context, is the repeated assertion throughout the report that there is no relationship between school size and the quality of the educational program in the district.

Pierce and Mallory (1968), in a report done for the Fresno City (California) Unified School District , attempted to relate the existing variance in student achievement scores to a selected list of variables. This was done for both elementary and secondary students. Among the variables related to achievement scores were the number of probationary teachers, whether the school was a compensatory or non-compensatory school, family income level, ethnic origin and school size. The authors conclude that school size is not a factor in accounting for variance in the mean achievement scores of elementary school students.

Michelson (1972) addressed himself to the relationship of school size and test scores. The author served as technical assistant to the plaintiffs in the case of Hobson vs. Hansen. The case dealt with the question of differences in per-pupil expenditures as a factor relating to racial segregation in

the Washington, D.C., public schools. In studying the relationship between school size and test scores, Michelson concluded that "an increase in size of school is detrimental to test scores, all else considered " (p. 304). In addition, even if it is possible to hold pupil/teacher ratios constant, large elementary school size is detrimental to test scores.

The author's conclusion is based upon data which did not prove to be statistically significant at an acceptable level of confidence, yet was persuasive enough to lead to his assertions.

Chambers (1972) discussed school size in the context of economic theory. He places his discussion of optimum school size within the theoretical framework of economies of scale. There are no distinctions made in the study between elementary and secondary schools.

Chambers makes the theoretical assumption that there is a condition of pure competition in the educational sector and then proceeds to investigate the relationship between school size and the qualtiy of educational services offered by the schools. The assumption of pure competition implies that the public schools will be operating under some sort of voucher plan. This, of course, limits the applicability of the conclusions, however, they may be of some interest in the context of this review.

The author concluded with an assertion that larger schools are not positively related to improved educational output. In addition, he indicates, on the grounds of efficiency, "schools could, and perhaps should, be smaller than they currently are in the public sector" (p. 38). If schools were operating under a voucher plan, elementary schools would be operating at maximum efficiency if the enrollment were at 200 pupils.

Adams and Kimble (1970) employed a questionnaire to survey 8,383 teachers in 511 public schools throughout the United States. There were 172 elementary schools included in the sample. A number of hypotheses drawn from organizational theory were generated concerning the relationship between school size and certain classroom variables. Among these variables were, "emphasis on discipline and control," "emphasis on punishment," and "emphasis on practice and performance."

The teachers were asked to describe their teaching practices which were conceived to fall into certain dimensions. The dimensions were conceptualized as a model of the classroom and its attendant interactions. The results of the study indicated that the greater the school size, the greater the emphasis on lecture and prescriptive rules. All other hypotheses which had been generated relative to the school size question were rejected. The authors caution against acceptance of any arguments advanced to support a chosen school size or organizational pattern.

Maltby, et al. (1972), in a long-range planning study done for the North Clackamas (Oregon) School District, concluded that an elementary school of 400-600 students is "most acceptable in terms of providing support services for instructors and pupils" (p. 129). Unfortunately, their conclusions were not based upon what research is available, but rather were generated from an internal survey within the school district. In addition, the authors do not address themselves to the relationship between school size and educational quality, but rather stress the relationship between school size and support services.

The picture which emerges from this review of the literature is a confused one. There is a contradictory nature to the conclusions of many of the

studies and in others the conclusions are not readily translatable into policy recommendations. It is, however, possible to begin to draw some inferences from this review.

It seems reasonably clear that there is little relationship between school size and students' scores on achievement tests. In addition, unless achievement test scores are used along with other measures of educational quality, they do not have much utility in determining the relationship between school size and quality education.

An additional tentative conclusion seems warranted from the sources reviewed. The optimal size of an elementary school should lie in the range from 200-500 pupils. Related to this is the emerging viability of the smaller elementary school in terms of providing quality education. An increase in elementary school size may mean a lowering of per-pupil expenditures, but it does not mean a related improvement of the quality of education offered the students. In fact, there is enough evidence to suggest that the opposite may be true.

It would seem that too often the prime criteria for closing smaller elementary schools is related to economic or administrative factors. This may, in the long run, prove to be more damaging to the childrens' education than is realized at this time. If the economic savings are achieved at the expense of the quality of education available to the students, it might be a wiser decision to maintain the elementary schools within a size range of 200-300 students. There seems to be at least tentative support for such a decision in the studies reviewed in this paper.

APPENDIX C

REFERENCES

REFERENCES

Adams, Raymond and Kimble, Richard. "School Size, Organizational Structure and Teaching Practice." Educational Administration Quarterly, 6:3 (Autumn, 1970), 15-31.

Chambers, Jay. An Analysis of School Size Under a Voucher System. Stanford: Stanford University School of Education, 1972. ED 085881.

Educational Facilities Laboratories. "Fewer Pupils/Surplus Space." New York, 1974.

Fonstad, Clifton. What Research Says About Schools and School Districts . . . Factors Related to Effectiveness: A Report. Madison, Wisconsin: Wisconsin State Department of Public Instruction, 1973. ED 085892.

Maltby, Gregory, et al. Master Plan for School Facilities: North Clackamas School District No. 12, Milwaukie, Oregon. Eugene: University of Oregon, Bureau of Educational Research and Service, 1972. ED 065912.

Michelson, Stephen. "Equal School Resource Allocation." Journal of Human Resources, 7:3 (Summer, 1972) 283-306.

Pierce, Louise and Mallory, Richard. Analysis of Achievement: Project Design. Interagency Planning for Urban Educational Needs, Number 5. Fresno, California: Fresno City Unified School District, 1968. ED 038747.

Small Schools Task Force. Report of the Small Schools Task Force. Rockville, Maryland: Montgomery County Public Schools, 1973.

Templeton, Ian. "School Size." Educational Management Review Series Number 13. Eugene: University of Oregon, ERIC Clearinghouse on Educational Management, 1972. ED 072505.